

MACROECONOMIC POLICIES - FEUNL

Exam: 07/06/2008

2:30 hours

Miguel Lebre de Freitas

Susana Salvado

I (4,5 values)

Describe 3 of the following concepts:

- i. Seigniorage versus inflation tax.
- ii. Unpleasant monetarist arithmetic.
- iii. The impossible trinity.
- iv. The Fisher effect.
- v. Distortion.

II (8,5 values)

Consider a closed economy where firms perceive the production function to be of the form $Y=AK$. In this economy the population is constant, the saving rate is equal to $s=0.27$ and the depreciation rate is equal to $\delta=0.01$. Assume also that the government levies a tax τ on production.

- a. Consider for the moment that $A=1/3$ and $\tau = 1/9$. Find out the growth rate of per capita income in this economy.
- b. Discuss, with the help of a graph the dynamic properties of this model. Does this model predict convergence among similar economies?
- c. On the basis of what you learned about distortions, give alternative interpretations for the parameter τ . Discuss.
- d. Examine the growth implications of a change in the size of the distortion from $\tau = 1/9$ to $\tau = 1/4$.
- e. Keeping the tax rate equal to $\tau = 1/4$, examine now the implications of an increase in the efficiency parameter from $A=1/3$ to $A=1/2$. Explain with the help of a graph.

The economy underlying the AK production function described above is actually more complex than at the first sight. In particular $A = (G/Y)^{0.5}$, where G is a public good.

- f. Assuming that all tax proceeds are used to finance productive expenditures, compute the growth rate of this economy when: $\tau = 1/9$ and when $\tau = 1/4$. Compare with a) and e) and discuss.
- g. In light of this new interpretation for A, how would you explain the equilibrium described in d)? Compare the 3 solutions with the help of a figure relating the growth rate of the economy with the tax rate.

III (5 values)

Consider a small open economy endowed with 3 units of labour, which produces a tradable good (T) and a non-tradable good (N). The corresponding production functions are $Y_N = L_N$ and

MACROECONOMIC POLICIES - FEUNL

Exam: 07/06/2008

2:30 hours

Miguel Lebre de Freitas

Susana Salvado

$Y_T = aL_T^{1/2}$. It is further assumed that labour is perfectly mobile across the two sectors; the foreign price of the tradable good is $P_T^* = 1$ and the nominal exchange rate is $e = 1$. There is no international borrowing, so that the trade balance is always zero.

- h. Find out the labour demand on the two sectors and the labour market arbitrage condition.
- i. Referring to the later, explain the Balassa-Samuelson effect.
- j. Find out the expression for the production possibilities frontier, assuming that $a = 2$. Plot it in a graph.

The utility function in this economy is of the Leontieff type, with the corresponding income expansion path given by $A_T = A_N$.

- k. Assuming that prices are flexible, compute the equilibrium values of Y_N , Y_T , $\lambda = P_T/P_N$, P_N , A_N and A_T . Show this equilibrium in a graph.
- l. Assume now that, starting from the equilibrium described by k, there is a productivity fall in the tradable goods sector, to $a = 1$. Assuming again that prices are flexible, describe the adjustment of the economy with the help of a graph. Compute the new levels of Y_N , Y_T , A_N and A_T .
- m. Now assume that prices were sticky. How would the economy adjust to the shock described in l? Compute the corresponding levels of Y_N , Y_T , A_N and A_T and describe the new equilibrium in a graph.
- n. What if the central bank could manipulate the exchange rate? Discuss.

IV (2 values)

Choose and comment one of the following sentences:

1. "Widespread tax evasion is a major cause of inefficiency, leading to lower growth".
2. "A pure flexible exchange rate regime has the advantage of allowing the real exchange rate to evolve closer to its long run equilibrium level".